

Abstract

The difficulty of working with titanium has inhibited the adoption of titanium compressor wheels in automotive air boost devices. The invention provides an economical process for the manufacture of titanium compressor wheels. A hybrid process is disclosed, wherein a forging process is used to produce a near net shape pattern including filled in areas (10, 11) which must be subsequently machined or milled away to produce the net shape compressor wheel. Using the hybrid or two-step process, the technical complexity and time investment in each step is greatly reduced, flaws as associated with the casting technique are eliminated, the process allows itself to be fully automated, the dimensional accuracy of the final product is greater than with conventional techniques, and the strength of the compressor wheel is increased as compared to cast product.